

ISTEP+ Science Sample Items (Grades 4 and 6)
(Beginning in Spring 2009)

1. Grade 4 Multiple Choice Item (Standard 3)

Which event is caused by Earth rotating on its axis?

- A. four different seasons
- B. the changing of the phases of the moon
- C. one day and one night in every 24 hours
- D. 365 days in a year

2. Grade 4 Constructed Response Item (Standard 3)

When the Rocky Mountains first formed, they were twice as tall as they are today. Name THREE NATURAL causes that could have eroded the Rocky Mountains over time.

3. Grade 4 Extended Response Item (Standard 2)

Emma investigated which brand of food her hamster likes best. She put equal amounts of each brand of food into three different food dishes and placed all three dishes in the hamster cage on a Monday morning. On the following Friday afternoon, Emma recorded how much of each brand of food was left in the bowls. Her results are shown in the table below.

Hamster Food Choices			
Brand of Hamster Food	Amount of Food Given (grams)	Amount of Food Left (grams)	Amount of Food Eaten (grams)
A	50	40	10
B	50	0	50
C	50	30	20

Name ONE tool Emma used to complete her investigation.

How much more of the Brand C food did Emma's hamster eat than the Brand A food?

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Which brand of food does Emma's hamster like best?

Describe the information you used to determine which brand of food Emma's hamster likes best.

Emma is going to do another investigation to find out what color of water her hamster prefers. What unit of measurement should she use when she measures out the water?

4. Grade 6 Multiple Choice Item (Standard 2)

Jenna rolled a small glass marble and a large glass marble down a ramp at the same time to see if the large marble would roll further than the small one. She repeated this investigation four times. The table below shows her results.

**Distances Rolled by
Marbles of Different Sizes**

Trial	Small Marble (centimeters)	Large Marble (centimeters)
1	305	300
2	306	304
3	299	309
4	301	298

Which statement CORRECTLY describes information found in Jenna's table?

- A. The small marble rolled further than the large marble in trials 2 and 3.
- B. The large marble rolled further than the small marble in trials 1 and 4.
- C. The difference in distances rolled by the small marble is less than 8 centimeters.
- D. The difference in distances rolled by the large marble is less than 8 centimeters.

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5. Grade 6 Constructed Response Item (Standard 3)

Describe the steps required for water in a lake to fall as rain onto an area of land. Be sure to include the changes that happen to the water in each step.

6. Grade 6 Extended Response Item (Standard 2)

Mark is studying how long different animals usually live. He found information on four different animals. His data are listed below.

*Black panthers live about 12 years in the wild and about 20 years in a zoo.

*Giraffes live about 20 years in the wild and about 25 years in a zoo

*Gorillas live about 35 years in the wild and about 50 years in a zoo.

*River otters live about 8 years in the wild and about 21 years in a zoo.

Use the information Mark gathered to complete the DATA TABLE below.

How Long Animals Live

	Living in the Wild (years)	

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According to the table, which animals live more than 15 years in the WILD?

According to the table, which animal lives almost THREE times as long in a zoo as it does in the wild?

Give ONE reason why all the animals Mark studied tend to live longer in a zoo than they do in the wild.

Item Sampler Answer Key

1. Grade 4 Multiple Choice Item

C. one day and one night in every 24 hours

2. Grade 4 Constructed Response Item

Key element(s): (Any three of the following.)

Natural causes that could have eroded the Rocky Mountains over time.

- Water
- Wind
- Ice
- Effects of plate (tectonic) movement
- Gravity (mass movement)
- Other reasonable response

3. Grade 4 Extended Response Item

Key Element(s):

balance/scale

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10 grams

Brand B

AND

any response indicating that the hamster ate more of Brand B than the other two brands of food

milliliters or liters

4 points Four key elements
3 points Three key elements
2 points Two key elements
1 point One key element
0 points No key elements

4. Grade 6 Multiple Choice Item

C. The difference in distances rolled by the small marble is less than 8 centimeters.

5. Grade 6 Constructed Response Item

Key Element(s):

All of the following: (one key element each)

1. Water in the lake changes from liquid to gas in the air (when warmed by the sun).
2. The water in the air changes back into liquid water and forms clouds (because the water is cooled as it moves higher into the atmosphere).
3. Water droplets in the clouds fall onto the land as rain.

2 points Three key elements
1 point

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One or two key elements
0 points No key elements

6. Grade 6 Extended Response Item

Key Element(s): _____

Data table correctly describes, organizes, and displays all information: (two key elements)

- all columns/rows labeled appropriately, including units of measurement
- table organized/labeled so that data relationships can be determined
- all data entered correctly

Exemplary response:

Animal	Living in the Wild (years)	Living in Zoo (years)
Black panther	12	20
Giraffe	20	25
Gorilla	35	50
River otter	8	21

giraffes and gorillas
AND
river otters

Any of the following:

- *They are always given enough food to eat (and water to drink) in the zoo./They do not always get enough food to eat (and water to drink) in the wild.
- *They are protected from predators in the zoo./They are not protected from predators in the wild.
- *They are kept in clean, temperature-controlled areas in the zoo./They cannot always live in safe and healthy areas in the wild (and in the wild they must survive any strange weather that comes to their area).
- * valid reason why the animals live longer in the zoo than in the wild

4 points Four key elements
3 points Three key elements

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2 points Two key elements
1 point One key element
0 points No key elements